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KUMAR, SRILAKSHMI K	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/051,567	HASHIMOTO, YOSHIHARU
	Examiner	**Art Unit**
	Srilakshmi K. Kumar	2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-39 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-39 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (US 5,886,689).

As to independent claim 1, Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59), and wherein in said power saving mode, voltages corresponding to highly significant bit signals of said image display data are applied as display data signals to said data electrodes (col. 1, lines 43-65). Although Chee et al do not disclose wherein the power saving mode, voltages corresponding to highly significant bit signals of said image display data are applied as display data signals to electrode, it would have been obvious to one of ordinary skill in the art that Chee et al disclose this feature as Chee et al disclose wherein different power saving modes, reduce voltage to non significant items, such as changing from color to gray scale (col. 7, lines 58-col. 8, line 2, 25-48).

As to dependent claim 2 and 27, limitations of claim 1, wherein said power saving mode includes an essential information display mode, where a predetermined uniform voltage level, which corresponds to a predetermined color and which is independent from said image display

data, is uniformly applied to all data electrodes on other region that at least a designated region for displaying the essential information (col. 7, lines 58-col. 8, lines 48).

As to dependent claim 3, limitations of claim 2, and further comprising, wherein said color liquid crystal display is of normally white type, and said predetermined color is white. Chee et al do not disclose where the display is of normally white type. It would have been obvious to one of ordinary skill in the art at full power or normal mode, the display would in an "on" state which would require the display to be white. In col. 1, lines 53-59, Chee et al disclose the "on" and active state which would be the normal mode.

As to dependent claim 4, limitations of claim 2, and further comprising, wherein said color liquid crystal is of normally black type, and said predetermined color is black. Chee et al do not disclose where the display is of black type. It would have been obvious to one of ordinary skill in the art that the display in power saving mode would be shown as black state. In col. 1, lines 53-59, Chee et al disclose an "on" and "sleep" state where the display would be shown as a black type.

As to dependent claim 5, limitations of claim 2, and further comprising, wherein a uniform scanning signal is simultaneously applied to all scanning electrodes on other region than said at least designated region for displaying the essential information (col. 5, lines 37-48, 66-col. 6, lines 12).

As to dependent claim 6, limitations of claim 1, and further comprising, wherein at least a full color display region in said color liquid crystal display is displayed in said normal driving mode, and wherein at least a partial color display region in said color liquid crystal display is displayed in said power saving mode (col. 7, lines 58-col. 8, lines 48).

As to dependent claim 7, limitations of claim 1, and further comprising, wherein said power saving mode further inactivates a gray scale voltage generating circuit, a polarity selecting circuit, and an output circuit included in a driver circuit for driving said color liquid crystal display (col. 7, lines 58-col. 8, lines 48).

2. Claims 8-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isami et al (US 6,166,725) in view of Chee et al.

As to independent claims 8 and 24, Isami et al disclose a circuit for driving a color liquid crystal display (Fig. 4), comprising; a data latch for selectively inverting image display data based on a polarity signal; a gray scale voltage generating circuit for generating a first set of plural positive polarity gray scale voltages and a second set of plural negative-polarity gray scale voltages (col. 10, lines 42-col. 11, lines 48);

a polarity selecting circuit for selecting one of said first set of said plural positive polarity gray scale voltages and said second set of said plural negative polarity gray scale voltages based on said polarity signal (col. 10, lines 42-col. 11, lines 48);

a gray scale voltage selecting circuit for selecting a single gray scale voltage from said selected plural gray scale voltages based on said image display data supplied from said data latch (col. 10, lines 42-col. 11, lines 48);

an output circuit for supplying said selected single gray scale voltage to a corresponding data electrode of said color liquid crystal display (col. 10, lines 42-col. 11, lines 48);

and a control circuit for inactivating said gray scale voltage generating circuit, said polarity selecting circuit (col. 10, lines 42-col. 11, lines 48); and said output circuit in a power

saving mode, and also for applying voltages corresponding to highly significant bit signals of said image display data as display data signals to said data electrodes in said power saving mode.

Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claim 27, limitations of claim 24, wherein said power saving mode includes an essential information display mode, where a predetermined uniform voltage level, which corresponds to a predetermined color and which is independent from said image display data, is uniformly applied to all data electrodes on other region that at least a designated region for displaying the essential information (Chee et al in col. 7, lines 58-col. 8, lines 48).

Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claim 28, limitations of claim 27, and further comprising, wherein said color liquid crystal display is of normally white type, and said predetermined color is white. Isami et al do not disclose a white type display. Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer. Chee et al do not disclose where the display is of normally white type. It would have been obvious to one of ordinary skill in the art at full power or normal mode, the display would in an "on" state, which would require the display to be white. In col. 1, lines 53-59, Chee et al disclose the "on" and active state, which would be the normal mode.

As to dependent claim 29, limitations of claim 27, and further comprising, wherein said color liquid crystal is of normally black type, and said predetermined color is black. Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami

as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer.

Chee et al do not disclose where the display is of black type. It would have been obvious to one of ordinary skill in the art that the display in power saving mode would be shown as black state. In col. 1, lines 53-59, Chee et al disclose an "on" and "sleep" state where the display would be shown as a black type.

As to dependent claim 31, limitations of claim 23, and further comprising, wherein at least a full color display region in said color liquid crystal display is displayed in said normal driving mode, and wherein at least a partial color display region in said color liquid crystal display is displayed in said power saving mode (col. 7, lines 58-col. 8, lines 48).

As to dependent claim 9, limitations of claim 8, and further comprising, wherein said polarity signal is selectively inverted for every horizontal synchronizing time periods or for every vertical synchronizing time periods (col. 15, lines 46-64).

As to dependent claim 10 and 26, limitations of claim 8, and further comprising, wherein said plural positive polarity gray scale voltages are predetermined to adjust to a positive voltage to transmittivity characteristic of said color lcd, and said plural negative polarity gray scale voltages are also predetermined to adjust to a negative voltage transmittivity characteristic of said color lcd (col. 18, lines 5-67).

As to dependent claims 11, 12 and 13, see limitations of claims 2, 3, and 4, respectively.

As to dependent claim 14 and 30, limitations of claim 11, and further comprising, a scanning electrode driving circuit, wherein said control circuit controls said scanning electrode driving circuit for simultaneously applying a uniform signal to all scanning electrodes on other

region than said at least designated region for displaying the essential information (col. 10, lines 42-col. 11, lines 48).

As to dependent claim 15, see limitations of claim 6.

As to dependent claim 16 and 32, limitations of claim 8, and further comprising, wherein said gray scale voltage generating circuit further comprises a divided voltage generating circuit for generating plural divided voltages different in voltage level from each other in a normal driving mode and also for generating no divided voltages in said power saving modes (col. 10, lines 42-col. 11, lines 48). Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claim 17 and 33, limitations of claim 16, and further comprising, wherein said divided voltage generating circuit further comprises; a series connection of plural resistances having a uniform resistance value (col. 18, lines 5-67); a high voltage side switch for applying a high voltage to a first side of said series connection of plural resistances in said normal driving mode and for applying no voltage to said first side in said power saving mode; and low voltage side switch for applying no voltage to said second side in said power saving mode (col. 18, lines 5-67). Isami et al do not disclose a power saving mode. Chee et al disclose

a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or "sleep", less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claim 18 and 34, limitations of claim 8, and further comprising, wherein said polarity circuit comprises a first switching group including plural switches for positive and a second switching group including plural switches for selecting said negative (col. 10, lines 42-col. 11, lines 48).

As to dependent claim 19 and 35, limitations of claim 8, and further comprising, wherein said gray scale voltage selecting circuit selects either first positive or second negative based on image display (col. 10, lines 42-col. 11, lines 48).

As to dependent claim 20 and 36, limitations of claim 19, and further comprising, wherein said output circuit generates an output signal based on said selected gray scale voltage from normal driving mode, and also said output circuit generates either one of predetermined high and low voltage levels independent from the power saving mode (col. 10, lines 42-col. 11, lines 48). Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have

been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or “sleep”, less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claim 21 and 37, limitations of claim 20, and further comprising, an amplifying circuit for voltage in normal driving mode, and amplifying circuit being inactive for power saving mode (col. 10, lines 42-col. 11, lines 48); a selecting circuit for selecting amplified gray scale voltage in the normal mode, and also selecting either one of said predetermined high and low voltage levels (col. 10, lines 42-col. 11, lines 48). Isami et al do not disclose a power saving mode. Chee et al disclose a method of driving a liquid crystal display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color liquid crystal display (col. 1, lines 43-59). It would have been obvious to one of ordinary skill in the art to incorporate the power saving features of Chee et al into that of Isami as the power saving features are advantageous as when the display is on idle or “sleep”, less power will be consumed thus saving the battery in a laptop or notebook computer.

As to dependent claims 22, 23 and 38, limitations of claim 8, wherein data latch comprises, a latch circuit and a level shifter and a selector for selecting based on said polarity signal and non inverted image data or inverted image data (col. 10, lines 42-col. 11, lines 48).

As to independent claim 39, see limitations of claims 8, 24 and 38.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 703 306 5575. The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, xxxx xxxx can be reached on xxx xxx xxxx. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Srilakshmi K. Kumar
Examiner
Art Unit 2675

SKK

DENNIS-DOON CHOW
PRIMARY EXAMINER